

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
23 February 2023 (23.02.2023)



(10) International Publication Number
WO 2023/022736 A1

(51) International Patent Classification:
H01L 21/687 (2006.01) *H01L 21/52* (2006.01)

(21) International Application Number:
PCT/US2021/047004

(22) International Filing Date:
20 August 2021 (20.08.2021)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant: **MRSI SYSTEMS LLC** [US/US]; 554 Clark Road, Tewksbury, MA 01876 (US).

(72) Inventors: **CELIA, Nicholas, Samuel, Jr.**; MRSI Systems LLC, 554 Clark Road, Tewksbury, MA 01876 (US). **DEVASIA, Cyriac**; MRSI Systems LLC, 554 Clark Road, Tewksbury, MA 01876 (US).

(74) Agent: **CURRAN, Matthew, J.** et al.; Maine Cernota & Rardin, 547 Amherst St., 3rd Floor, Nashua, NH 03063 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(54) Title: DIE BONDING SYSTEM WITH WAFER LIFT AND LEVEL ASSEMBLY

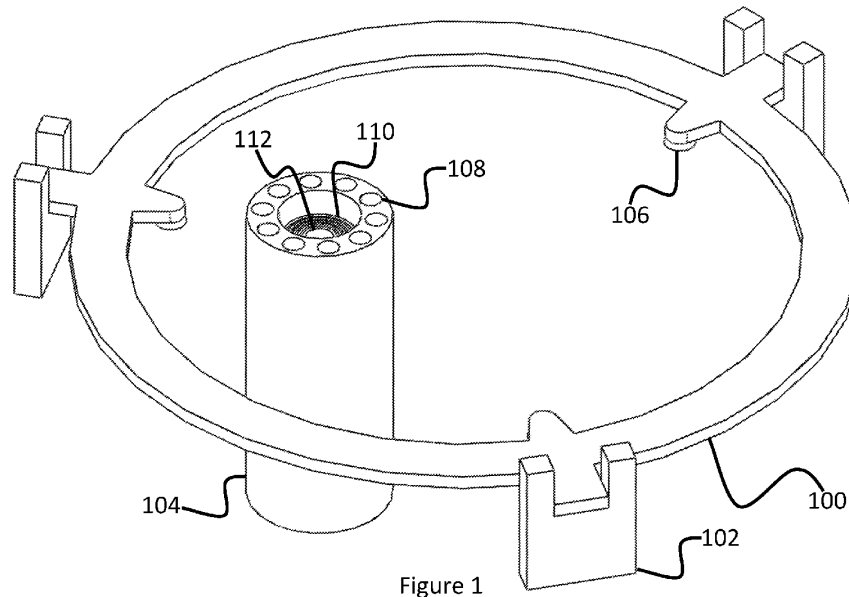


Figure 1

(57) Abstract: A die bonding system comprising a wafer lift and level assembly configured to allow rapid planarization of a wafer comprising a wafer frame configured to retain a wafer and be slidably retained within guide clevises and a leveling pedestal configured to support a wafer from below in a localized area where a die bonding operation is to take place, allowing the quick and repeatable planarization of die(s) to the wafer without the need for distinct planarization procedures that would slow cycle times and decrease production.

[Continued on next page]

WO 2023/022736 A1

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

Published:

- *with international search report (Art. 21(3))*